

1 8. At least one of a paper and board according to Claim 2, wherein the
2 composition of the inner coat is deposited in an amount of between 1 and 3 g/m²--

REMARKS

The above-captioned patent application has been carefully reviewed in light of the Office Action to which this Amendment is responsive. Claims 1-6 have been amended in an effort to more completely describe and distinctly point out that which these Applicants regard as the invention. Claims 7 and 8 have been added. It is believed that no new matter has been added.

Claims 1-6 stand rejected on prior art grounds. Claims 1-6 are also rejected based on 35 USC §112. Applicants respectfully request reconsideration based on the amended claims, the attached Rule 132 Affidavit, and the following comments.

Claims 1 and 3 are rejected under 35 USC §102 (b) as being anticipated by Miyamoto (U.S. Patent No. 4,440,827). Applicants respectfully traverse the rejection.

In order to anticipate under the statute, a single reference must contain each and every claimed limitation. Those limitations which are not found in the single reference must be notoriously well known in the field.

To that end, Miyamoto does not describe a paper or board which is intended to be printed by gravure or flexographic printing. Such a printing method must be distinguished from the ink jet printing method described by the cited patent.

As detailed in the present specification page 11, lines 11-25, gravure printing and flexographic printing essentially consist in pressing the paper to be printed onto an etched cylinder having a multitude of cells which are filled with fluid ink. As indicated therein, the quality of the printing depends on the quality of the contact between the ink and the paper during the rotation of the cylinder.

On the other hand, Miyamoto teaches that one of the requirements of the ink jet printing process is that the support must rapidly absorb the ink dot sufficiently towards the horizontal direction on its surface in order to enhance the resolution (see column 1, lines 45-50 of Miyamoto).

What the above means is that the ink jet process satisfactorily resolves any ink contact problems, but that the instant process is confronted with the problem of requiring quick absorption of ink. In order to solve the latter problem, prior art cited in

Miyamoto as well as Miyamoto itself describes a paper coated with a mixture of finely powdered silica with a binder. According to one embodiment, silica is used in combination with other pigments such as kaolin or calcium carbonate (see column 3, lines 25-35, and example 9). In fact, the use of silica in the surface coat of the paper is absolutely essential in order to improve the absorption of the ink, making it possible for the paper to be printed using an ink jet process. That is why the amount of deposited silica is not less than 60 parts (see Q9).

In direct contrast, the surface coat of the present invention does not contain silica, as supported throughout by examples. In example 1, the top coat contains 85 parts of kaolin-see table at page 9. In example 2 found in the table at page 13, the topcoat contains calcium carbonate in combination or not with kaolin. In example 3, the topcoat also mainly contains kaolin.

Applicants herein submit under 37 CFR § 1.132, an Affidavit from Pascale Escaffre in support of the preceding arguments. Applicants can supply additional detail as to the testing performed according to the Affidavit upon request.

It is believed Claim 1, as amended, is novel over Miyamoto. Claim 1 has been amended to specify that the paper or board consist of a fibrous medium which is coated with at least one conventional surface coat intended to be printed by gravure or flexographic printing (not ink jet printing) and that the composition of the inner coat between the fibrous medium and the surface coat be based upon specific pigments including at least one specific pigment chosen from the group consisting of silica, precipitated calcium carbonate (PCC) and calcined kaolin.

Because these features are not found in Miyamoto, there can be no anticipation of Claim 1 under the statute. It is believed dependent Claim 3 is also allowable for the same reasons. Reconsideration is respectfully requested.

Claims 1-6 stand rejected under 35 USC §103(a) as being unpatentable over Miyamoto. Applicants traverse the rejection in order to provide a *prima facia* obviousness rejection under the statute, each essentially claimed limitation must be found in the combined teachings of the cited prior art. Furthermore, there must be a motivation provided by the prior art as a whole to make the asserted combination.

As noted above, Miyamoto recites that the paper describes therein is printed onto using an ink jet process and not a gravure or flexographic printing process

according to the present invention. Furthermore, the surface coat of the paper of Miyamoto includes silica while the surface coat of the present invention specifically and categorically does not include silica. As previously noted, the inclusion of silica in a surface coat of the paper of Miyamoto is essential in order to improve the absorption time if the ink since the paper described therein is printed using an ink jet process. On the other hand, gravure or flexographic printing processes are not faced with an ink absorption time problem but are faced with contact issues. Miyamoto at column 3, lines 25-35 describes a surface coating which includes kaolin or calcium carbonate. Such pigments, however, are always mixed with a large amount of silica (typically about 60 parts). It is believed that the paper of the present application cannot be printed using the ink jet process of Miyamoto. For these reasons, it is believed that Claim 1, as amended is not rendered obvious by the citation of Miyamoto. Reconsideration is respectfully requested.

Claims 2 and 3 are dependent on Claim 1 and are believed allowable for the same reasons.

With respect to Claim 4, Applicants now specifically recite a process for paper or a board which is intended to be printed by gravure or flexographic printing and consisting of the step of applying a surface coat thereupon which does not include silica. As noted above, Miyamoto relies upon an ink jet printing process and utilizes a surface coat which includes a high percentage of silica to improve the absorption time of the ink. Therefore, it is believed that Claim 4, as amended, is allowable over the cited reference. Claims 5-6 are allowable for the same reasons. Support is provided throughout as noted in each of the examples in the present specification. Reconsideration is respectfully requested.

Claims 1 and 4-6 are rejected under 35 USC §103(a) as being unpatentable over Goodman (EP 0337771 A1) in view of Asano et al. (EP 0634283). Applicants respectfully traverse this rejection. As previously noted and in order to maintain a *prima facie* obviousness rejection, each essentially claimed limitation must be found in the cited references as combined. Furthermore, the cited references must be looked at in their entirety and not in a piecemeal fashion.

Goodman relates to a coated paper suitable for printing by the rotogravure process. According to a disclosed embodiment of the Goodman invention, the

rotogravure base paper is made of: a base coat consisting of a non-smectite type clay such as kaolin clay, natural or synthetic calcium carbonate, tube or a natural or synthetic calcium sulphate (page 2, lines 41-44) and a top coat consisting of a smectite-type clay (bentonite, montmorillonite, hectorite, saponite) see page 2, lines 36-39.

In other words, Goodman does not disclose a base coat containing at least a pigment chosen from the group consisting of silica, precipitated calcium carbonate, and calcined kaolin.

The difference between Goodman and the present invention consists of the selection of pigment. Precipitated calcium carbonate and calcined kaolin cannot be considered identical to calcium carbonate as noted by the Examiner. Such modified pigments are already described in the as filed application, see page 6, line 31 to page 7, line 2. In addition, example 1 shows the advantage of the use of silica instead of calcium carbonate in the base coat. Furthermore, the table of page 12 indicates that the printability of the paper of the present invention (82mm) is higher than the two-ply paper (18mm).

In other words, for a paper having a topcoat of the same composition, the printability is improved when the base coat includes silica instead of natural calcium carbonate. According to example 2, the use of silica instead of a mixture of kaolin (Amazone 90) and calcium carbonate (Omyalite 90) in the base coat gives better results in terms of printability as shown in the table of page 16.

For this reason, it was not obvious to select among available pigments, silica, precipitated calcium carbonate or calcined kaolin as now recited in amended independent Claims 1 and 4.

Claims 1 and 4 have been amended to recite the above essential feature. Support is found replete in the present specification. Because Goodman does not contain or suggest a base coat as now recited in amended Claim 1, there can be no obviousness rejection under the statute.

Turning to Section 112 rejections, Applicants have now extensively amended Claims 1-6 to make the claims more definite. In particular, Claim 1 has been amended to delete the term "improved" and Claims 1 and 4 have been amended to remove the terms "which depends on the subsequent application envisaged" and "on their arm". Claims 2, 3, and 4 have been amended to remove the relative phrases noted by the

Examiner. Claims 2, 3, 5, and 6 have been amended to delete the "characterized" language.

As to the definition of "fibrous medium" of Claims 1, 5, and 6, Applicant does not understand why the Examiner has indicated any particular confusion for this term. Additional detail relating to this indefiniteness is requested.

Reconsideration is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

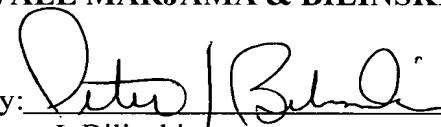
If the Examiner believes that contact with Applicant's attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicant's attorney at the phone number noted below.

In summary, it is believed the above-captioned patent application is now in an allowable condition and such allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-0289.

Respectfully submitted,

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20874

PATENT TRADEMARK OFFICE



IN THE UNITED STATES PATENT OFFICE

In Re the Application of:

Pierre Girard et al.

Serial Number: 09/508,316

Filed: May 26, 2000

Title: Paper or Cardboard with Improved Printability

AFFIDAVIT UNDER RULE 1.132

Pascale Escaffre, being duly sworn, does hereby dispose and say as follows:

1. I received a Master's Degree in Physical Sciences from the University Paul Sabatier in Toulouse, France in 1981, a degree in Chemical Engineering at the Ecole Nationale Supérieure de Chimie in Toulouse, France in 1983 and a PhD at the Institut Nationale Polytechnique de Toulouse in 1986.
2. I was employed as a Researcher in New Product Development for the Vicat Group, Vizelle Paper Mill, France from 1987 until 1991.
3. I was employed as Laboratory Manager, then Project Manager with Sibille Dalle in France from 1991 until 1997. After the merger with Ahlstrom in 1997, I took the position of Business Development Manager until January 1999. I am currently Research and Development Manager at Ahlstrom Research and Competence Center. Each of the above positions are involved in the field of specialty materials.
4. I am a named joint inventor for the above-captioned patent application.
5. I am aware of and have read U.S. Patent No. 4,440,827 to Miyamoto et al. which has been cited in conjunction with the above-captioned patent application.
6. I have attempted to duplicate certain examples presented in the above-captioned patent application using the ink jet process generally described by Miyamoto. More specifically and on September 26, 2001, I attempted to manufacture the paper of comparative Example 3 using compositions A and B as described by the present patent application. The compositions of these samples are as follows:

SAMPLE 3

<u>PRECOATING-COMPOSITION A</u>		
Pigments	SK 300 DS	100
Binder	Acronal A 360 D	60
Insolubilizing Agent	Urecoll SU	1
<u>TOPCOAT</u>		
Pigments	Amazon 90 (Kaolin)	85
	Satin White	15
Binder	Acronal A 360 D	16
Thickener	Rheocoat 35	0.3
Lubricant	Cecavon CA 350	0.9

SAMPLE 4

<u>PRECOATING-COMPOSITION B</u>		
Pigments	Colloidal PCC	100
Binder	Acronal A 360 D	20
Insolubilizing Agent	Urecoll SU	1
<u>TOPCOAT</u>		
Pigments	Amazon 90 (Kaolin)	85
	Satin White	15
Binder	Acronal A 360 D	16
Thickener	Rheocoat 35	0.3
Lubricant	Cecavon CA 350	0.9

7. Each of the above identified samples utilizes the ink jet printing process rather than the rotogravure or flexogravure printing process. Sample 3 (attached) represents a paper made in accordance with Comparative Example 3, Composition A according to the above-captioned patent application for the precoating layer, and Sample 4 (attached) represents a paper made in accordance with Comparative Example 3, Composition B according to the above-captioned patent application for the precoating layer.
8. As is evident from the attached Samples 3 and 4, it is evident that the support has not sufficiently absorbed the ink to prevent flow. In addition, there is ink diffusion along the horizontal direction along the surface thereof utilizing the ink jet printing process.
9. It is my opinion that a paper according to my invention can not be suitably printed using the ink jet printing process described by Miyamoto et al. and can only be printed using a rotogravure or flexogravure printing process.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

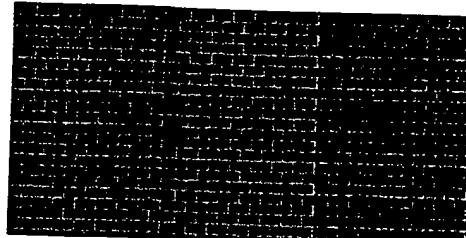
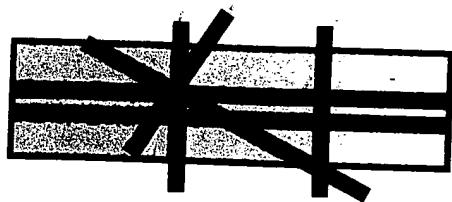
Dated: 31/10/2001

Signature:

Pascal Escalle

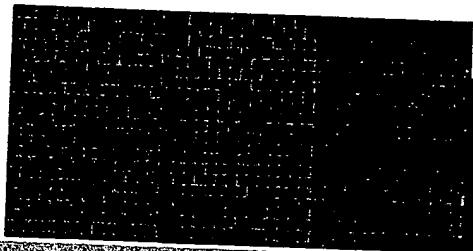


4



PCC +TOP 1
EPSON STYLUS COLOR 500
Photo quality - Setting =Best
01/09/27

3



Silica +TOP 1
EPSON STYLUS COLOR 500
Photo quality - Setting =Best
01/09/27

"VERSION WITH MARKINGS TO SHOW CHANGES MADE."

In the Claims:

Claims 1-6 have been Amended as follows:

1 1. (Amended) Paper or board [with improved printability, intended to be printed
2 by gravure or flexographic printing,] consisting of a fibrous medium coated with at least
3 one conventional surface coat [^{intended to be} printed by gravure or flexographic
4 printing, [the composition of which depends on the subsequent application envisaged,]
5 and including, between the fibrous medium and the conventional surface coat, [a] an
6 inner coat of a composition based on specific pigments, [this] said inner coat being
7 deposited in an amount from one to five grams per square meter (1 to 5 g/m²),

8 [characterized:]

9 wherein:

10 [□ in that the said coat based on specific pigments is intended to improve the
11 contact between the conventional surface coat and the printing ink;]
12 • the composition of the conventional surface coat does not contain silica;
13 [□ and it includes at least one specific pigment chosen from the group consisting
14 essentially of silica, precipitated calcium carbonate (PCC) and calcined kaolin,
15 on their own or as a mixture]
16 • and the composition of the inner coat includes at least one specific pigment
17 chosen from the group consisting of silica, precipitated calcium carbonate
18 (PCC) and calcined kaolin.

1 2. (Amended) At least one of a paper and a [Paper or] board according to Claim
2 1, [characterized in that] wherein the composition [based on specific pigments] of the
3 inner coat consists exclusively of silica [making it possible, apart from improving the
4 printability, to maintain a high porosity].

1 3. (Amended) At least one of a paper and a [Paper on] board according to [either
2 of Claims 1 and 2,] Claim 1, [characterized in that] wherein the composition [based on
3 specific pigments] of the inner coat is deposited in an amount of at least one gram per

4 square meter (1 g/m^2) [, advantageously between one and three grams per square meter
5 (1 and 3 g/m^2].

1 4. (Amended) A process [Process] for the manufacture of a paper or of a board,
2 intended to be printed by gravure or flexographic printing, which consists of the
3 following steps:

- 4 • [in] producing a fibrous medium from a paper suspension; [,]
5 [□then in coating the medium with at least one conventional surface coat, the
6 composition of which depends on the subsequent application envisaged,]
7 • depositing on the fibrous medium between one and five grams per square
8 meter (1 and 5 g/m^2) of a composition based on specific pigment chosen
9 from the group consisting of silica, precipitated calcium carbonate and
10 calcined kaolin; [,]
11 • drying the fibrous medium which has been deposited;
12 • coating the covered fibrous medium with at least one conventional
13 surface coat intended to be printing by gravure or flexographic printing,
14 the composition of which not containing silica,
15 • [in] drying the paper or the board [thus formed,] created by said drying and
16 coating steps; and
17 • [and finally in] calendering the paper or board obtained
18 [, characterized in that:
19 between one and five grams per square meter (1 and 5 g/m^2) of a composition
20 based on specific pigments chosen from the group consisting essentially of silica,
21 precipitated calcium carbonate and calcined kaolin, on their own or as a mixture, are
22 deposited beforehand on the fibrous medium;
23 and then, the fibrous medium thus covered is dried before it is coated with the
24 conventional surface coat].

1 5. (Amended) A process [Process] according to Claim 4, [characterized in that]
2 wherein the deposition of the composition based on specific pigments on the fibrous
3 medium is carried out by coating.

1 6. (Amended) A process [Process] according to Claim 5, [characterized in that]
2 wherein the deposition of the composition based on specific pigments on the fibrous
3 medium followed by the coating of the conventional coat are carried out using at least
4 one of a coater, [or] a size press, [or] and a metering size press (MSP).